

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A method for laser machining a coated sheet, comprising:

placing a coated sheet having first and second surfaces near a laser such that one surface of the sheet faces the laser and the other surface of the sheet faces away from the laser; and

generating on at least one coated surface of the coated sheet at least one topographical change protruding from the surface by directing the laser beam onto the sheet and guiding the laser beam to describe a narrowing spiral, whereby the laser beam generates the at least one topographical change protruding from:

- the laser beam facing surface of the sheet, or
- the surface of the sheet which faces away from said beam, by melting through

this sheet, and

wherein the topographical change protrudes from the coated surface a height sufficient to provide a spacing gap between the coated surface on which the topographical change was formed and a sheet to which the coated sheet is to be welded sufficient to permit vaporization products formed in the welding process to escape into the at least one gap ~~prevent explosive vaporization of the coating material when the coated sheet is welded to the second sheet.~~

2. (currently amended) The method as claimed in claim 1, wherein the laser beam is a focused laser beam having a focus and a focal area at said focus, and wherein the focus of the laser beam focus is situated at such a distance from the surface of the sheet to be machined that the irradiation area of the laser on the surface exceeds the focal area thereof by at least 50 percent.

3. (currently amended) A method for laser machining a coated sheet, comprising:

placing a coated sheet having first and second surfaces near a laser such that one surface of the sheet faces the laser and the other surface of the sheet faces away from the laser; and

generating on at least one coated surface of the coated sheet at least one topographical change protruding from the surface by directing the laser beam onto the sheet and guiding the laser beam to describe a narrowing spiral, whereby the laser beam generates the at least one topographical change protruding from:

- (a) the laser beam facing surface of the sheet, or
- (b) the surface of the sheet which faces away from said beam, by melting through this sheet;

bringing at least one further sheet into contact with the sheet formed in (a) or (b) in such a way that the at least one protruding topographical change causes the formation of at least one gap between the coated sheet and the at least one further sheet, and

welding the coated sheet and the at least one further sheet together in the region of the at least one gap in such a way that vaporization products formed in the process escape into the at least one gap ~~without explosive vaporization~~.

4. (previously presented) The method as claimed in claim 3, wherein the at least two sheets are welded together to form a weld seam, and wherein said weld seam at least partially replaces the at least one topographical change previously generated.

5. (previously presented) The method as in claim 1, wherein the surface from which said least one topographical change protrudes is the laser beam facing surface.

6. (previously presented) The method as in claim 1, wherein the surface from which said least one topographical change protrudes is the surface of the sheet which faces away from the laser beam.

7. (currently amended) A method for laser machining a coated sheet comprising:
- generating on at least one surface of the coated sheet at least one topographical change protruding from the sheet by directing a laser beam onto the sheet and guiding the laser beam to describe a narrowing spiral, whereby the laser beam generates the at least one topographical change on the surface of the sheet which faces away from said beam by melting through this sheet, and

Application No: 10/526,989
Amendment D
Reply to Final Office Action Dated 01/06/2010

Attorney Docket No: 3926.135

- controlling said melting through ~~to stop when the topographical change protrudes from the sheet~~ by

- (a) pre-specifying the laser processing time or
- (b) providing a penetration sensor which senses the formation of the protrusion and regulates the machining time of the laser in response to the detection of the protrusion.

8. (cancelled).

9. (cancelled).

10. (previously presented) The method as in claim 7, wherein prior to formation of said topographical changes two sheets are aligned to each other for welding, the alignment being without contact pressure, and wherein after alignment said topographical changes are introduced through at least one sheet, said method further comprising the subsequent steps of:
pressing the aligned sheets together, and
welding the aligned and pressed sheets together.